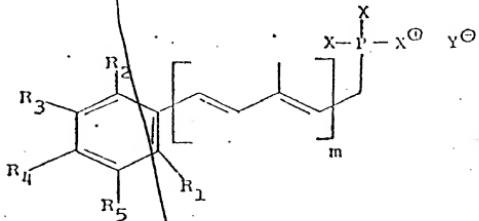


1. A compound of the formula:



3. wherein m is an integer from 0 to 1; R_1
 4. and R_2 are lower alkyl; R_3 is hydrogen,
 5. halogen, lower alkyl, lower alkoxy, lower
 6. alkenyloxy, nitro, amino, lower alkylamino,
 7. lower alkanoylamino or N-heterocyclyl; R_4 is
 8. hydrogen, lower alkyl, lower alkenyl, lower
 9. alkoxy, lower alkenyloxy, nitro, amino, lower
 10. alkylamino, lower alkanoylamino or N-hetero-
 11. cyclyl; and R_5 is hydrogen, halogen, lower
 12. alkyl, lower alkenyl, lower alkoxy, lower
 13. alkenyloxy, nitro, amino, lower alkylamino,
 14. lower alkanoylamino or N-heterocyclyl; with the
 15. proviso that one of R_3 , R_4 and R_5 is other than
 16. hydrogen and with the further proviso that when
 17. R_3 or R_5 is halogen, R_4 is other than a lower
 18. alkoxy; and X is aryl; and Y is an anion of an
 19. inorganic or organic acid.

1 1. The compound of claim 1 wherein R₁, R₂, R₃, R₄
2 and R₅ are hydrogen or lower alkyl.

1 2. The compound of claim 2 wherein said compound is
2 2,3,6-trimethyl-benzyl-triphenylphosphonium bromide.

1 3. The compound of claim 2 wherein said compound is
2 2,4,6-trimethyl-benzyl-triphenylphosphonium chloride.

1 4. The compound of claim 2 wherein said compound is
2 2,3,4,6-tetramethyl-benzyl-triphenylphosphonium chloride.

1 5. The compound of claim 2 wherein said compound is
2 pentamethyl-benzyl-trimethylphosphonium chloride.

1 6. The compound of claim 2 wherein said compound is
2 2,4,6-triisopropyl-benzyl-triphenylphosphonium chloride.

1 7. The compound of claim 1 wherein at least one of
2 R₃, R₄ and R₅ is lower alkoxy.

1 8. The compound of claim 8 wherein said compound is
2 4-methoxy-2,6-dimethyl-benzyl-triphenylphosphonium chloride.

1 10. The compound of claim 8 wherein said compound is
2 3-methoxy-2,4,6-trimethyl-benzyl-triphenylphosphonium chloride.

1 11. The compound of claim 8 wherein said compound is
2 4-methoxy-2,3,5,6-tetramethyl-benzyl-triphenylphosphonium
3 chloride.

1 12. The compound of claim 8 wherein said compound is
2 3,6-dimethoxy-2,4,5-trimethyl-benzyl-triphenylphosphonium
3 chloride.

1 13. The compound of claim 8 wherein said compound is
2 4-methoxy-3-allyl-2,6-dimethyl-benzyl-triphenylphosphonium
3 chloride.

1 14. The compound of claim 8 wherein said compound is
2 4-methoxy-3-nitro-2,6-dimethyl-benzyl-triphenylphosphonium
3 chloride.

1 15. The compound of claim 8 wherein said compound is
2 5-(4-methoxy-2,3,6-trimethyl-phenyl)-3-methyl-penta-2,4-
3 dien-1-triphenylphosphonium bromide.

1 The compound of claim 8 wherein said compound is
2 4-methoxy-2,3,6-trimethyl-benzyl-triphenylphosphonium chloride.

1 The compound of claim 8 wherein said compound is
2 4-isopropoxy-2,3,6-trimethyl-benzyl-triphenylphosphonium
3 chloride.

1 The compound of claim 1 wherein one of R_3 , R_4 or
2 R_5 is lower alkylamino.

1 The compound of claim 18 wherein said compound is
2 3-dimethylamino-2,4,6-trimethylbenzyl-triphenylphosphonium
3 chloride.

1 The compound of claim 1 wherein one of R_3 or R_5
2 is halogen.

1 The compound of claim 18 wherein said compound is
2 3-chloro-2,4,6-trimethyl-benzyl-triphenylphosphonium chloride.

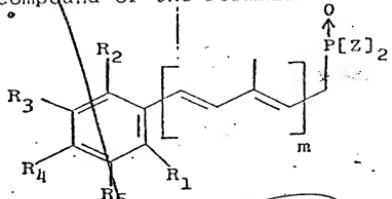
1 The compound of claim 1 wherein one of R_3 , R_4
2 or R_5 is nitro.

1 The compound of claim 22 wherein said compound is
2 3-nitro-2,4,6-trimethyl-benzyl-triphenylphosphonium chloride.

1 24. The compound of claim 1 wherein one of R₃, R₄
2 or R₅ is lower alkenyloxy.

1 25. The compound of claim 24 wherein said compound is
2 5-(4-allyloxy-2,3,6-trimethyl-phenyl)-3-methyl-penta-2,4-
3 dien-1-triphenylphosphonium bromide.

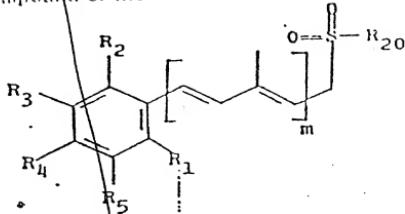
1 26. A compound of the formula:



2 wherein m is an integer from 0 to 1; R₁ and
3 R₂ are a lower alkyl; R₃ is hydrogen, halogen,
4 lower alkyl, lower alkoxy, lower alkenyloxy,
5 nitro, amino, lower alkylamino, lower alkanoylamino
6 or N-heterocyclyl; R₄ is hydrogen, lower alkyl,
7 lower alkenyl, lower alkoxy, lower alkenyloxy,
8 nitro, amino, lower alkylamino, lower alkanoylamino
9 or N-heterocyclyl; and R₅ is hydrogen, halogen,
10 lower alkyl, lower alkenyl, lower alkoxy, lower
11 alkenyloxy, nitro, amino, lower alkylamino, lower
12 alkanoylamino or N-heterocyclyl; with the proviso
13 that at least one of R₃, R₄ or R₅ is other than
14 hydrogen; and with the further proviso that when
15 R₃ or R₅ is halogen, R₄ is other than lower alkoxy,
16 and Z is alkoxy.

27. The compound of claim 26 wherein said compound is
4-methoxy-2,3,6-trimethyl-benyl-diethylphosphonate.

28. A compound of the formula :

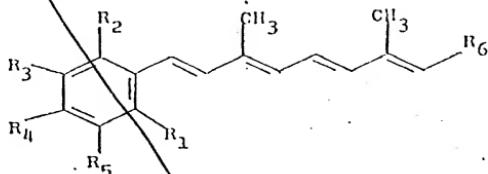


wherein m is an integer from 0 to 1; R₁ and R₂ are lower alkyl; R₃ is hydrogen, halogen, lower alkyl, lower alkoxy, lower alkenyloxy, nitro, amino, lower alkylamino, lower alkanoylamino or N-heterocyclyl; R₄ is hydrogen, lower alkyl, lower alkenyl, lower alkoxy, lower alkenyloxy, nitro, amino, lower alkylamino, lower alkanoylamino or N-heterocyclyl; and R₅ is hydrogen, halogen, lower alkyl, lower alkenyl, lower alkoxy, lower alkenyloxy, nitro, amino, lower alkylamino, lower alkanoylamino or N-heterocyclyl; with the proviso that at least one of R₃, R₄ or R₅ is other than hydrogen; and with the further proviso that when R₃ or R₅ is halogen, R₄ is other than lower alkoxy;

6 and R₂ is aryl or aralkenyl, aryl substituted with
7 an electron donating or electron withdrawing group,
8 or aralkenyl where the aryl moiety is substituted by an
9 electron withdrawing or electron donating group.

1 29. The compound of claim 28 wherein said compound is
2 1-(phenylsulphonyl)-methyl-4-methoxy-2,3,6-trimethyl-benzene.

—30. A compound of the formula:



wherein R_1 and R_2 are lower alkyl; R_3 is hydrogen, lower alkyl, lower alkoxy, lower alkenyloxy, nitro, halo, amino, lower alkylamino, lower alkanoylamino, or N-heterocyclyl; R_4 is hydrogen, lower alkyl, lower alkenyl, lower alkoxy, lower alkenyloxy, nitro, lower alkanoyloxy, amino, lower alkylamino or N-heterocyclyl; R_5 is hydrogen, lower alkyl, lower alkenyl, lower alkoxy, lower alkenyloxy, nitro, halo, amino, lower alkanoylamino, lower alkylamino or N-heterocyclyl; with the proviso that at least one of R_3 , R_4 and R_5 is other than hydrogen; with the further proviso that when R_3 or R_5 is halogen,

~~R₄ is other than alkoxy; R₆ is formyl, hydroxymethylene, alkoxyethylene, alkanoyloxymethylene, carboxyl, alkoxy carbonyl, alkenyloxycarbonyl, alkyloxycarbonyl, carbamoyl, mono (lower alkyl)-carbamoyl, di (lower alkyl)-carbamoyl, or N-heterocyclylcarbonyl;~~

and pharmaceutically acceptable salts thereof.

1 31. The compound of claim 30 wherein R₃, R₄ and R₅ are
2 hydrogen or lower alkyl and R₆ is carboxyl.

1 32. The compound of claim 31 wherein said compound is
2 9-(2,3,6-trimethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8-tetraen-1-oic acid.

1 33. The compound of claim 31 wherein said compound is
2 9-(2,4,6-trimethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8-tetraen-1-oic acid.

1 34. The compound of claim 31 wherein said compound is
2 9-(2,4,6-triisopropyl-phenyl)-3,7-dimethyl-nona-2,4,6,8-tetraen-1-oic acid.

1 35. The compound of claim 31 wherein said compound is
2 9-(2,3,4,6-tetramethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8-tetraen-1-oic acid.

1 36. The compound of claim 31 wherein said compound is
2 9-(pentamethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8-tetraen-1-oic acid.

1 37. The compound of claim 30 wherein at least one of R₃, R₄
2 or R₅ is lower alkoxy and R₆ is carboxyl.

28. The compound of claim 27 wherein said compound is 9-(4-methoxy-2,6-dimethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8-tetraen-1-ic acid.

26. The compound of claim 37 wherein said compound is
9-(4-methoxy-2,3,6-trimethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8-
tetraen-1-oic acid.

34. The compound of claim 30 wherein R_6 is alkoxy carbonyl.

44st. The compound of claim 3 wherein said compound is 9-(4-methoxy-2,3,6-trimethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8^o tetraen-1-oic acid methyl ester.

5 26. The compound of claim 20 wherein said compound is
9-(4-methoxy-2,3,6-trimethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8-
tetraen-1-oic acid ethyl ester.

45. The compound of claim 40 wherein said compound is
9-(4-methoxy-2,3,6-trimethyl-phenyl)-3,7-dimethyl-nona-2-trans,4E
cis,6-trans,8-trans-tetraen-1-oic acid ethyl ester.

1 *g* 3. The compound of claim 30 wherein said compound is
2 9-(4-methoxy-2,3,6-trimethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8-
3 tetraen-1-oic acid isopropyl ester.

1 *g* 3. The compound of claim 30 wherein said compound is
2 9-(4-methoxy-2,3,6-trimethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8-
3 tetraen-1-oic acid butyl ester.

1 *g* 3. *of the alkoxy group moiety* The compound of claim 30 wherein the ~~lower~~ alkoxy group is
2 substituted with alkylamino, morpholino, piperidyl, pyridyl, alkyl
3 substituted piperidyl or alkyl substituted pyridyl.

1 *g* 3. The compound of claim 30 wherein said compound is
2 9-(4-methoxy-2,3,6-trimethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8-
3 tetraen-1-oic acid diethyl aminoethyl ester.

1 *g* 3. The compound of claim 30 wherein said compound is
2 9-(4-methoxy-2,3,6-trimethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8-
3 tetraen-1-oic acid (3-pyridyl)methyl ester.

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12. 17. The compound of claim 16 wherein R₆ is alkynyloxycarbonyl.

13. 18. The compound of claim 17 wherein said compound is

2. 9-(4-methoxy-2,3,6-trimethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8^o

3. tetraen-1-oic acid allyl ester.

14. 19. The compound of claim 18 wherein R₆ is alkynyloxycarbonyl.

15. 20. The compound of claim 19 wherein said compound is

2. 9-(4-methoxy-2,3,6-trimethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8^o

3. tetraen-1-oic acid propargyl ester.

16. 21. The compound of claim 20 wherein R₆ is alkanoyloxymethylene.

17. 22. The compound of claim 21 wherein said compound is

2. 1-acetoxy-9-(4-methoxy-2,3,6-trimethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8^o

3. 2,4,6,8-tetraene.

18. 23. The compound of claim 22 wherein R₆ is carbamoyl.

19. 24. The compound of claim 23 wherein said compound is

2. 9-(4-methoxy-2,3,6-trimethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8^o

3. tetraen-1-oic acid amide.

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1 *29* The compound of claim ~~27~~ wherein R_6 is lower alkylcarbamoyl.

1 *30* The compound of claim ~~29~~ wherein said compound is
2 9-(4-methoxy-2,3,6-trimethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8
3 tetraen-1-oic acid ethyl amide.

1 *31* *29* The compound of claim ~~29~~ wherein said compound is
2 9-(4-methoxy-2,3,5,6-tetramethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8
3 tetraen-1-oic acid ethyl amide.

1 *32* *29* The compound of claim ~~29~~ wherein said compound is
2 9-(4-methoxy-2,3,6-trimethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8
3 tetraen-1-oic acid diethylamide.

1 *33* The compound of claim ~~29~~ wherein R_6 is N-heterocyclylcarbonyl.

1 *34* *29* The compound of claim ~~29~~ wherein said compound is
2 9-(4-methoxy-2,3,6-trimethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8
3 tetraen-1-oic acid morpholide.

1 *35* *29* The compound of claim ~~29~~ wherein at least one of R_4 and R_5
2 is lower alkenyl and R_6 is carboxyl.

(99)

74. The compound of claim 63 wherein said compound is
9-(4-methoxy-3-allyl-2,6-dimethyl-phenyl)-3,7-dimethyl-nona-
2,4,6,8-tetraen-1-oic acid.

75. The compound of claim 60 wherein at least one of R_3 and R_4 or R_5 is nitro and R_6 is ~~carboxy~~ or alkoxy carbonyl.

76. The compound of claim 66 wherein said compound is
9-(4-methoxy-3-nitro-2,6-dimethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8-
tetraen-1-oic acid ethyl ester.

77. The compound of claim 65 wherein said compound is
9-(3-nitro-2,4,6-trimethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8-
tetraen-1-oic acid.

78. The compound of claim 68 wherein at least one of R_3 and R_4 or R_5 is lower alkylamino and R_6 is alkoxy carbonyl.

79. The compound of claim 68 wherein said compound
is 9-(3-dimethylamino-2,4,6-trimethyl-phenyl)-3,7-dimethyl-nona-
2,4,6,8-tetraen-1-oic acid ethyl ester.

40. The compound of claim 30 wherein at least one of R_3 or R_5 is halogen and R_6 is carboxyl.

41. The compound of claim 30 wherein said compound is 9-(3-chloro-2,4,6-trimethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8-tetraen-1-oic acid.

42. The compound of claim 30 wherein at least one of R_3 or R_5 is lower alkenyloxy and R_6 is carboxyl.

43. The compound of claim 72 wherein said compound is 9-(4-allyloxy-2,3,6-trimethyl-phenyl)-3,7-dimethyl-nona-2,4,6,8-tetraen-1-oic acid.

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